

Receipt date: 08/19/2009

Aug-19-09 12:58pm

From: SONNENSCHN NATH ROSENTHAL

RECEIVED
CENTRAL FAX CENTER

09612607 - GAU: 2814

T-573 P.03/14 F-8E1

AUG 19 2009

Substitute for Form 1449/PTO				Complete if Known		
INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)				Application Number	Not Yet Assigned	
				Filing Date	Herewith	
				First Named Inventor	Daniel E. Grupp	
				Art Unit	Not Yet Assigned	
				Examiner Name	Not Yet Assigned	
Sheet	1	of	2	Attorney Docket Number	003771.P001D	
U.S. PATENT DOCUMENTS						
Examiner Initials*	Cite No.	Document Number		Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code ² (if known)				
		us-	4,631,352	12/23/1986	Daud et al	
		us-	4,675,711	6/23/1987	Harder et al	
		us-	4,751,563	6/14/1988	Laborwitz et al	
		us-	4,837,804	6/6/1989	Faris	
		us-	4,935,804	6/19/1990	Ito et al	
		us-	5,019,530	5/28/1991	Kleinsasser et al	
		us-	5,258,625	11/2/1993	Kamohara et al	
		us-	5,291,274	3/1/1994	Tamura	
		us-	5,401,980	3/28/1995	Fang et al	
		us-	5,422,496	6/5/1995	Kamohara et al	

FOREIGN PATENT DOCUMENTS							
Examiner Initials*	Cite No.	Foreign Patent Document		Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T*
		Country Code ¹ Number ² Kind Code ³ (if known)					

Examiner Signature	/Long Pham/	Date Considered	08/29/2009
--------------------	-------------	-----------------	------------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. Applicant's unique citation designation number (optional). ²See Kind Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. ³Enter Office that issued the document, by the two-letter code (WIPO Standard ST 3). ⁴For Japanese patent documents, the indication of the year of reign of the Emperor must precede the serial number of the patent document. ⁵Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST 16 if possible. ⁶Applicant is to place a check mark here if English language translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

PAGE 3/14 * RCVD AT 8/19/2009 3:55:05 PM [Eastern Daylight Time] * SVR:USPTO-EF-XRF-6/32 * DNIS:2731714 * CSID: * DURATION (mm-ss):04:50

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /L.P./

Receipt date: 08/19/2009

Aug-19-09 12:58pm

From=SONNENSCHN NATH ROSENTHAL

RECEIVED
CENTRAL FAX CENTER

09612607 - GAU: 2814

T-573 P.04/14 F-861

AUG 19 2009

Completing this form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2

Substitute for Form 1449/PTO

INFORMATION DISCLOSURE
STATEMENT BY APPLICANT

(use as many sheets as necessary)

Complete if Known

Application Number	Not Yet Assigned
Filing Date	Herewith
First Named Inventor	Daniel E. Grupp
Art Unit	Not Yet Assigned
Examiner Name	Not Yet Assigned
Attorney Docket Number	003771 P001D

Sheet 2 003771 P001D 2

NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published	T ²
		P. Hadley, "Single-Electron Tunneling Devices", <u>IMR Programme Certosa di Pontignano (SI)</u> , 7/20, September 1997, 1-15	
		Haroon Ahmed, Kazuo Nakazato, "Single-Electron Devices", <u>Microelectronic Engineering 32</u> , (1996), pp 297-315	
		John Randall et al., "Potential Nanoelectronic Integrated Circuit Technologies", <u>Microelectronic Engineering 32</u> , (1996) pp 15-30	
		Bogdan, Majkusiak, "Experimental and Theoretical Study of the Current-Voltage Characteristics of the MISIM Tunnel Transistor", <u>IEEE Transactions on Electron Devices vol 45 No. 9 (Sep. 1998) pp. 1903-1911</u>	
		C A Mead, "Operation of Tunnel-Emission Devices", <u>Journal of Applied Physics, Vol. 32, No. 4 (Apr. 1959)</u>	

Examiner Signature	/Long Pham/	Date Considered	08/29/2009
--------------------	-------------	-----------------	------------

*Examiner: initial if reference considered, whether or not citation is in conformance with MPEP 809. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹Applicant's unique citation designation number (optional). ²Applicant is to place a check mark here if English Translation is attached.

This collection of information is required by 37 CFR 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

If you need assistance in completing this form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

AUG 19 2009

Substitute for Form 1449/PTO				Complete if Known		
INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)				Application Number	Not Yet Assigned	
				Filing Date	Herewith	
				First Named Inventor	Daniel E. Grupp	
				Art Unit	Not Yet Assigned	
				Examiner Name	Not Yet Assigned	
Sheet	1	of	2	Attorney Docket Number	003771.P001D	
U.S. PATENT DOCUMENTS						
Examiner Initials*	Cite No.*	Document Number		Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code* (if known)				
		US	5,475,341	12/12/1995	Reed	
		US	5,589,692	12/31/1996	Reed	
		US	5,604,154	2/18/1997	Takahashi et al	
		US	5,612,233	3/18/1997	Roesner et al	
		US	5,646,420	7/8/1997	Yamashita	
		US	5,648,559	7/8/1997	Higurashi	
		US	5,665,979	9/9/1997	Takanashi et al	
		US	5,677,637	10/14/1997	Nakazato et al	
		US	5,705,827	1/6/1998	Baba et al	
		US	5,710,051	1/20/1998	Park et al	

FOREIGN PATENT DOCUMENTS							
Examiner Initials*	Cite No.*	Foreign Patent Document		Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T*
		Country Code- Number- Kind Code* (if known)					

Examiner Signature	/Long Pham/	Date Considered	08/29/2009
-----------------------	-------------	-----------------	------------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. *Applicant's unique citation designation number (optional). *See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. *Enter Office that issued the document, by the two-letter code (WIPO Standard ST 3). *For Japanese patent documents, the indication of the year of reign of the Emperor must precede the serial number of the patent document. *Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST 16 if possible. *Applicant is to place a check mark here if English language translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to be (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

Receipt date: 08/19/2009

Aug-19-09 12:58pm From-SONWENSCHIN NATH ROSENTHAL

RECEIVED
CENTRAL FAX CENTER

09612607 - GAU: 2814
T-573 P.06/14 F-861

AUG 19 2009

Completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

Substitute for Form 1449/PTO				Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(use as many sheets as necessary)</i>				Application Number	Not Yet Assigned
				Filing Date	Herewith
				First Named Inventor	Daniel E. Grupp
				Art Unit	Not Yet Assigned
				Examiner Name	Not Yet Assigned
Sheet	2	003771.P001D	2	Attorney Docket Number	003771 P001D
NON PATENT LITERATURE DOCUMENTS					
Examiner Initials*	Cite No ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume+issue number(s), publisher, city and/or country where published			T ²
		Y. Takahashi et al., "Fabrication Technique for Si Single-Electron Transistor Operating at Room Temperature", IEEE Electronics Letters Online No. 19950063 vol. 31 No. 2, (Jan. 19, 1995) pp. 136-137			
		Kazuo Nakazato and Haroon Ahmed, "Enhancement of Coulomb blockade in Semiconductor Tunnel Junctions", Appl. Phys. Lett., (Mar. 21, 1995) pp. 3170-3172			
		R. H. Davis and H.H. Hosack, "Double Barrier in Thin-Film Triodes", Journal of Applied Physics, vol. 34, No. 4 (Part 1), (4/63) pp. 864-866			
		Kiyonori Kato, "Liquid helium Level Meter by Audio-Sound Detection", Rev. Sci. Instrum (60/7), (7/89) pp. 1343-1345			
		E. Tosatti and R. Martonak, "Rotational Melting in Displacive Quantum Paraelectrics", Solid State Communications, vol. 92, Nos. 1-2 (1984) pp. 167-180			

/Long Pham/

Examiner Signature	/Long Pham/	Date Considered	08/20/2009
--------------------	-------------	-----------------	------------

*Examiner: initial a reference considered, whether or not citation is in conformance with MPEP 608. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹Applicant's unique citation designation number (optional). ²Applicant is to place a check mark here if English Translation is attached. This collection of information is required by 37 CFR 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SENT FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

AUG 19 2009

Substitute for Form 1449/PTO				Complete if Known		
INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)				Application Number	Not Yet Assigned	
				Filing Date	Herewith	
				First Named Inventor	Daniel E. Grupp	
				Art Unit	Not Yet Assigned	
				Examiner Name	Not Yet Assigned	
Sheet	1	of	2	Attorney Docket Number	003771.P001D	
U.S. PATENT DOCUMENTS						
Examiner Initials*	Cite No.*	Document Number		Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code* (if known)				
	us-	5,731,598		3/24/1998	Kado et al	
	us-	5,754,077		5/19/1998	Ohata et al.	
	us-	5,834,793		11/10/1998	Shibata	
	us-	3,116,427		12/13/1963	Gkaever	
	us-					
	us-					
	us-					
	us-					
	us-					

FOREIGN PATENT DOCUMENTS							
Examiner Initials*	Cite No.*	Foreign Patent Document		Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T*
		Country Code*	Number* Kind Code* (if known)				

Examiner Signature	/Long Pham/	Date Considered	08/29/2009
--------------------	-------------	-----------------	------------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. *Applicant's unique citation designation number (optional). *See Kind Codes of USPTO Patent Documents at www.uspto.gov or MPEP 801.04. *Enter Office that issued the document, by the two-letter code (WIPO Standard ST 3). *For Japanese patent documents, the indication of the year of reign of the Emperor must precede the serial number of the patent document. *Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. *Applicant is to place a check mark here if English language translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

Receipt date: 08/19/2009

Aug-19-09 12:59pm From:SONNENSCHN NATH ROSENTHAL

RECEIVED 09612607 - GAU: 2814
CENTRAL FAX CENTER T-573 P.08/14 F-861

AUG 19 2009

Completing this form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2

Substitute for Form 1449/PTO				Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)				Application Number	Not Yet Assigned
				Filing Date	Herewith
				First Named Inventor	Daniel E. Grupp
				Art Unit	Not Yet Assigned
				Examiner Name	Not Yet Assigned
Sheet	2	003771 P001D	2	Attorney Docket Number	003771 P001D
NON PATENT LITERATURE DOCUMENTS					
Examiner Initials*	Cite No ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published			T ²
		Hiroyuki Sakaki, "Quantum Microstructure Devices", <u>Solid State Communication</u> , vol. 92, Nos. 1-2, (1994) pp 119-127			
		M A Reed et al, "Realization of a Three-Terminal Resonant Tunneling Device The Bipolar Quantum Resonant Tunneling Transistor" App Phys Lett (11) (Mar. 12, 1989) pp. 1034-1036			
		R J Schoelkopf et al, "The RF-SET. A Fast and Ultra-Sensitive Electrometer", Submitted to Science, (12/11/97) pp. 1-6			
		Federico Capaso et al, "Multiple Negative Transconductors and Differential Conductance in a Bipolar Transistor by Sequential Quenching of Resonant Tunneling" App Phys Lett 53 (12) (19 Sep 1988) pp 1056-1058			
		J.L. Huber et al, "An RTD/Transistor Switching Block and its Possible Application in Binary and Ternary Adders", IEEE Transaction of Electron Devices, vol. 44 No. 12 (12/97) pp 2149-2153			
Examiner Signature	/Long Pham/			Date Considered	08/29/2009

*Examiner: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Applicant's unique citation designation number (optional): *Applicant is to place a check mark here if English Translation is attached.
This collection of information is required by 37 CFR 1.58. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.
If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

Receipt date: 08/19/2009

Aug-19-09 01:00pm From=SONNENSCHN NATH ROSENTHAL

RECEIVED
CENTRAL FAX CENTER

09612607 - GAU: 2814

T-573 P.08/14 F-861

AUG 19 2009

Substitute for Form 1449/PTO				Complete if Known		
INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(use as many sheets as necessary)</i>				Application Number	Not Yet Assigned	
				Filing Date	Herewith	
				First Named Inventor	Daniel E. Grupp	
				Art Unit	Not Yet Assigned	
				Examiner Name	Not Yet Assigned	
Sheet	1	of	2	Attorney Docket Number	003771.P001D	
U.S. PATENT DOCUMENTS						
Examiner Initials*	Cite No.†	Document Number		Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code [§] (if known)				
		US-				
		US-				
		US-				
		US-				
		US-				
		US-				
		US-				
		US-				
		US-				

FOREIGN PATENT DOCUMENTS							
Examiner Initials*	Cite No.†	Foreign Patent Document		Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T*
		Country Code [§]	Number-Kind Code [§] (if known)				

Examiner Signature	/Long Pham/	Date Considered	08/29/2009
--------------------	-------------	-----------------	------------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. †Applicant's unique citation designation number (optional). ‡See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. §Enter Office that issued the document, by the two-letter code (WIPO Standard ST 3). ¶For Japanese patent documents, the indication of the year of reign of the Emperor must precede the serial number of the patent document. **Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST-16 if possible. ***Applicant is to place a check mark here if English language translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9198 (1-800-785-8198) and select option 2.

Receipt date: 08/19/2009

Aug-19-09 01:00pm From-SONNENSCHN NATH ROSENTHAL

RECEIVED
CENTRAL FAX CENTER

09612607 - GAU: 2814

T-573 P.10/14 F-861

AUG 19 2009

Completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2

Substitute for Form 1449/PTO				Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)				Application Number	Not Yet Assigned
				Filing Date	Herewith
				First Named Inventor:	Daniel E. Grupp
				Art Unit	Not Yet Assigned
				Examiner Name	Not Yet Assigned
Sheet	2	003771.P001D	2	Attorney Docket Number	003771.P001D
NON PATENT LITERATURE DOCUMENTS					
Examiner Initials*	Cite No ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume+issue number(s), publisher, city and/or country where published			T ²
		Robert F. Service, "Microelectronics" "IBM Puts Fast Chips on a New Footing", <u>Science</u> , vol 281, (Aug. 14, 1998) pp. 893-894			
		David Berman et al., "Single-Electron Transistor Research", <u>http://nanowired.mit.edu/annual-report/14</u> , (downloaded 10/7/98), pp. 1-4			
		Mikko Paalanen, "Nanophysics-A New Frontier of Science", <u>http://www.edute.fy/lehdet/polysteekki/297/nanop.html</u> , (downloaded 10/7/98) pp. 1-5			
		Steven P. Beaumont, "III-V Nanoelectronics", <u>Elsevier Science B.V., Microelectronic Engineering 32</u> , (1996) pp. 283-295			
		P.K. Vasudev and P.M. Seitzoff, "Si-ULSI with a Scaled-Down Future", <u>IEEE Circuits & Devices</u> , (1998), pp. 19-29			
Examiner Signature	/Long Pham/			Date Considered	08/29/2009

*Examiner Initial if reference considered, whether or not citation is in conformance with MPEP 809. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹Applicant's unique creation designation number (optional). ²Applicant is to place a check mark here if English Translation is attached. This collection of information is required by 37 CFR 1.58. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

Receipt date: 08/19/2009

Aug-18-09 01:00pm From:SONNENSCHN NATH ROSENTHAL

RECEIVED
CENTRAL FAX CENTER

09612607 - GAU: 2814

T-573 P.11/14 F-861

AUG 19 2009

Substitute for Form 1449/PTO		Complete if Known			
INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(use as many sheets as necessary)</i>		Application Number	Not Yet Assigned		
		Filing Date	Here with		
		First Named Inventor	Daniel E. Grupp		
		Art Unit	Not Yet Assigned		
		Examiner Name	Not Yet Assigned		
Sheet	1	of	2		
Attorney Docket Number		003771.P001D			
U.S. PATENT DOCUMENTS					
Examiner Initials*	Cite No.*	Document Number Number-Kind Code* (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			

FOREIGN PATENT DOCUMENTS						
Examiner Initials*	Cite No.*	Foreign Patent Document Country Code Number Kind Code* (if known)		Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear

Examiner Signature	/Long Pham/	Date Considered	08/29/2009
--------------------	-------------	-----------------	------------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. *Applicant's unique citation designation number (optional). *See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. *Enter Office that issued the document, by the two-letter code (WIPO Standard ST 3). *For Japanese patent documents, the indication of the year of reign of the Emperor must precede the serial number of the patent document. *Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST 16 if possible. *Applicant is to place a check mark here if English language translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS.

SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

PAGE 11/14 * RCVD AT 8/19/2009 3:55:05 PM [Eastern Daylight Time] * SVR:USPTO-EFAXF-6/32 * DNIS:2731714 * CSID: * DURATION (mm:ss):04:50

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /L.P./

AUG 19 2009

Completing the form call 1-800-P(10)-9199 (1-800-786-9199) and select option 2

Substitute for Form 1449/PTO				Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(use as many sheets as necessary)</i>				Application Number	Not Yet Assigned
				Filing Date	Herewith
				First Named Inventor	Daniel E. Grupp
				Art Unit	Not Yet Assigned
				Examiner Name	Not Yet Assigned
Sheet	2	003771 P001D	2	Attorney Docket Number	003771 P001D
NON PATENT LITERATURE DOCUMENTS					
Examiner Initials*	Cite No ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published			
		S J Wind et al., "Scaling Silicon MOS Device to Their Limits", <u>Elsevier Microelectronic Engineering</u> 32, (1996) pp. 271-282			
		Naoki Yokoyama et al., "A New Functional Resonant-Tunneling Hot Electron Transistor (RHET)", <u>Japanese Journal of Applied Physics</u> , vol. 24 No. 11 (11/85) pp. 1853-1854			
		Victor Ryzhii et al., "Resonant-Tunneling Bipolar Transistors with a Quantum-Well Base", <u>Japanese Journal of Applied Physics</u> , vol. 35 No. 10 (10/96) pp. 5280-5283			
		Serge Luryi and Federico Capasso, "Resonant Tunneling of Two-Dimensional Electrons Through a Quantum Wire: A Negative Transconductors Device" <u>Appl Phys Lett</u> 47 (12) (Dec. 15, 1985) pp. 1347-1349			
		J R Schreffer, "Symmetry of the Order Parameter in High Temperature Superconductors", <u>Solid State Communications</u> , vol. 92, Nos 1-2 (1994) pp. 129-139			

Examiner Signature	/Long Pham/	Date Considered	08/29/2009
--------------------	-------------	-----------------	------------

*Examiner Initial if reference considered, whether or not citation is in conformance with MPEP 608. Draw line through citation if not in conformance; and not considered. Include copy of this form with next communication to applicant.

¹Applicant's unique citation designation number (optional). *Applicant is to place a check mark here if English Translation is attached. This collection of information is required by 37 CFR 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1460, Alexandria, Virginia 22313-1460.

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

Receipt date: 08/19/2009

Aug-18-09 01:01pm From:SONNENSCHN NATH ROSENTHAL

RECEIVED
CENTRAL FAX CENTER

09612607 - GAU: 2814

AUG 19 2009

T-573 P 13/14 F-861

Substitute for Form 1449/PTO				Complete if Known		
INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(use as many sheets as necessary)</i>				Application Number	Not Yet Assigned	
				Filing Date	Herewith	
				First Named Inventor:	Daniel E. Grupp	
				Art Unit	Not Yet Assigned	
				Examiner Name	Not Yet Assigned	
Sheet	1	of	2	Attorney Docket Number	003771.P001D	
U.S. PATENT DOCUMENTS						
Examiner Initials*	Cite No.†	Document Number		Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code* (if known)				
		US-				
		US-				
		US-				
		US-				
		US-				
		US-				
		US-				
		US-				
		US-				
		US-				

FOREIGN PATENT DOCUMENTS							
Examiner Initials*	Cite No.†	Foreign Patent Document		Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T*
		Country Code*	Number- Kind Code* (if known)				

Examiner Signature	/Long Pham/	Date Considered	08/29/2009
--------------------	-------------	-----------------	------------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. *Applicant's unique citation designation number (optional). *See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. *Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3) *For Japanese patent documents, the indication of the year of reign of the Emperor must precede the serial number of the patent document. *Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. *Applicant is to place a check mark here if English language translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS.

SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-785-9199) and select option 2.

Receipt date: 08/19/2009

Aug-19-09 01:01pm

From: SONNENSCHN EINHATH ROSENTHAL

RECEIVED
CENTRAL FAX CENTER09612607 - GAU: 2814
T-873 P.14/14 F-861

AUG 19 2009

Completely fill in form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

Substitute for Form 1449/PTO

INFORMATION DISCLOSURE
STATEMENT BY APPLICANT

(use as many sheets as necessary)

Complete if Known

Application Number	Not Yet Assigned
Filing Date	Herewith
First Named Inventor	Daniel E. Grupp
Art Unit	Not Yet Assigned
Examiner Name	Not Yet Assigned
Attorney Docket Number	003771 P001D

Sheet 2 003771 P001D 2

NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published	T ²
		Federico Capasso and Richard A. Kiehl, "Resonant Tunneling Transistor with Quantum Well Base and High-Energy Injection: A New Negative Differential Resistance Device" J Appl Phys 58 (3) (Aug. 1, 1985) pp. 1368-1367	
		A. C. Seabaugh et al., "Resonant Transmission in the Base/Collector Junction of a Bipolar Quantum-Well Resonant-Tunneling Transistor" App Phys Lett 59 (26) (23 Dec 1991) pp. 3413-3415	
		Ming C. Wu et al., "Quantum-Switched Heterojunction Bistable Bipolar Transistor by Chemical Beam Epitaxy", Appl. Phys. Lett. 57 (2) (Jul. 9, 1990) pp. 150-152	
		Alan C. Seabaugh et al., "Pseudomorphic Bipolar Quantum Resonant-Tunneling Transistor", IEEE Transactions on Electron Devices vol. 36, No. 10 (10/89) pp. 2327-2334	
		D. Ali and H. Ahmed, "Coulomb Blockade in a Silicon Tunnel Junction Device", Appl. Phys. Lett. 64 (16), (18 Apr 1994), pp. 2119-2120	

Examiner Signature	/Long Pham/	Date Considered	08/29/2009
--------------------	-------------	-----------------	------------

*Examiner: include if reference considered, whether or not citation is in conformance with MPEP 809. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹Applicant's unique citation designation number (optional) ²Applicant is to place a check mark here if English Translation is attached

This collection of information is required by 37 CFR 1.88. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.